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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,104	03/06/2002	James Douglas Wehrly JR.	0254-082/D1	9757

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EXAMINER

BROCK II, PAUL E

ART UNIT PAPER NUMBER

2815

DATE MAILED: 10/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,104

Applicant(s)

WEHRLY, JAMES DOUGLAS

Examiner

Paul E Brock II

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the solder containing compound and the pick and place tool must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: It is not clear in the specification where antecedent basis can be found for the claim terms “multiple iterations” and “indents”.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 – 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. It is not clear in claim 1 if the recitation of “a solder containing compound” in line 12 of the claim is the same “solder containing compound” recited in line 6 of the claim. It is not clear if there are one or two solder containing compounds. For purposes of this office action the recitation of “a solder containing compound” in line 12 of the claim will be considered --a second solder containing compound--.

6. It is not clear in claim 1 if the recitation of “solder connections” in line 16 of the claim is the same “solder connections” recited in line 10 of the claim. It is not clear if there are one or two solder connections. For purposes of this office action the recitation of “solder connections” in line 12 of the claim will be considered --second solder connections--.

7. Claim 1 recites the limitation "the resulting combination" in line 9 of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action “the resulting combination” will be considered --a resulting combination--.

8. Claim 1 recites the limitation "the members" in lines 6 – 7, 8, 10 – 11, 12 – 13, 14 and 16 – 17 of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the members" will be considered --the plurality of members--.

9. The term "multiple iterations" in claim 2 is a relative term which renders the claim indefinite. The term "multiple iterations" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear how many iterations "multiple iterations" defines. Further, it is not clear how these iterations relate to each other.

10. Claim 3 recites the limitation "the members" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the members" will be considered --the plurality of members--.

11. Claim 4 recites the limitation "the members" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the members" will be considered --the plurality of members--.

12. Claim 5 recites the limitation "the members" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action "the members" will be considered --the plurality of members--.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1 – 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikita et al. (USPAT 6133637, Hikita) in view of Sakai et al. (USPAT 5894984, Sakai).

With regard to claim 1, Hikita discloses in figures 43 – 45 a method of creating a stack of integrated circuits selectively connected to provide increased memory density in an application. Hikita discloses in figures 43 – 45 providing a carrier frame (12) configured to have a plurality of members (12b) emergent into a window within the carrier frame. Hikita discloses in figures 43 – 45 and column 5, lines 10 – 11 applying a solder-containing compound (14c) to the first side of the plurality of members; Hikita discloses in figures 43 – 45 placing a first integrated circuit (14) in contact with the plurality of members. Hikita discloses in figures 43 – 45 and column 21, lines 12 – 14 processing a combination of the first integrated circuit and the carrier frame by transfer molding to create solder connections between the plurality of members and the first integrated circuit. Hikita discloses in figures 43 – 45 and column 5, lines 10 – 11 applying a second solder-containing compound (16b) to the second side of the plurality of members of the carrier frame. Hikita discloses in figures 43 – 45 placing a second integrated circuit (16) in contact with the plurality of members. Hikita discloses in figures 43 – 45 and column 21, lines 12 – 14 processing the combination of the first integrated circuit and the carrier frame by transfer molding to create

second solder connections between the plurality of members and the second integrated circuit. It is not clear in Hikita if the transfer molding step includes processing the combination with a heat source. Sakai teaches in figure 8a and column 1, lines 24 – 33 a transfer molding step that includes processing a combination with a heat source. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the heat source of Sakai in the transfer molding step of Hikita in order to form an encapsulating member to protect an integrated circuit device.

With regard to claim 2, Hikita discloses in figures 43 – 45 in which multiple iterations of the carrier frame are created in a carrier bed.

With regard to claim 3, Hikita discloses in figures 43 – 47 in which the resulting assembly of the carrier frame and the first and second integrated circuits is further processed by separation of the members from the carrier frame.

With regard to claim 4, Hikita discloses in figures 43 – 47 in which the carrier frame has indents between the body of the carrier frame and the members to simplify later separation of the carrier frame body from the members.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hikita and Sakai as applied to claim 1 above, and further in view of the applicant's admitted prior art (AAPA).

Hikita discloses in figures 43 – 45 in which the first and second integrated circuits are placed in contact with the members. It is not clear what type of tool is used for this placement operation. The AAPA teaches on page 9, lines 12 – 14 integrated circuits are placed in contact with the members with a pick and place tool. It would have been obvious to one of ordinary skill in the art to use the pick and place tool of the AAPA for the placement of the first and second integrated circuits in the method of Hikita and Sakai in order to implement an assembly as stated by the AAPA on page 9, lines 12 – 14.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Venkateshwaran et al., Casto, Masayuki et al. and Osada all teach a carrier frame with a plurality of members emergent into a window within the carrier frame.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II
October 23, 2002

A handwritten signature in black ink, appearing to read 'PEB' followed by a stylized flourish.A handwritten signature in black ink, appearing to read 'Eddie Lee' in a cursive style.

EDDIE LEE
SUPERVISING PATENT EXAMINER
TECHNOLOGY CENTER 2800